How Emerging Technologies Benefit Human Capital in Maritime Operations

Carla Lang

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BRITISH COLUMBIA
INSTITUTE OF TECHNOLOGY

BCIT

The British Columbia Institute of Technology acknowledges that our campuses are located on the unceded traditional territories of the Coast Salish Nations of **Sḵwx̱wú7mesh** (Squamish), **səl̓ilwətaʔɬ** (Tsleil-Waututh), and **xwməθkwəy̓əm** (Musqueam).

- Human Capital
- Key Technologies
- How Emerging Technologies Benefit Human Capital
- Challenges
- Conclusion

Human Capital

Key Technologies

Improved Safety

Enhanced Training and Skill Development

Operational Efficiency

Workforce Mobility and Flexibility

Improved Safety

- Automation and AI reduce human error.
- Drones and robotics reduce crew members engage in dangerous tasks.
- Fatigue Management
- Ergonomic Technology
- Mental Health Support

Enhanced Training and Skill Development

- Virtual and augmented reality (VR/AR) provide simulation-based training, allowing maritime personnel to practice without risk.

Operational Efficiency

- Predictive maintenance minimizes downtime and optimizes resource allocation.
- AI-based route optimization assists operators in making informed decisions, improving fuel efficiency and cutting operational costs.

Workforce Mobility and Flexibility

- Remote control systems and telemedicine enable crew members to operate vessels or manage issues from shore.
- Training and Upgrading skills can take place on board vessels.

Challenges

- Data Protection
- Cybersecurity
- Regulatory compliance and workforce upskilling
- Overcoming barriers

Conclusion

- Cost-Effective Training
- Enhanced Safety Measures
- Reduced Downtime
- Operational Excellence
- Competitive Advantage

QUESTIONS & ANSWERS